

CLASSIFICATION CONFIDENTIAL - SECURITY INFORMATION

CENTRAL INTELLIGENCE AGENCY

REPORT

INFORMATION REPORT

CD NO.

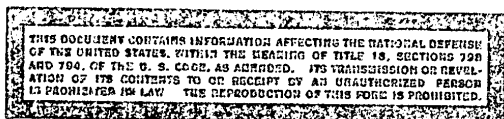
50X1-HUM

COUNTRY USSR (Georgian SSR)

DATE DISTR. 2 October 1953

SUBJECT Khram-GES Hydroelectric Power Station
Near Molotovka

NO. OF PAGES 10

PLACE
ACQUIREDNO. OF ENCLS.
(LISTED BELOW)DATE OF
INFO.SUPPLEMENT TO 50X1-HUM
REPORT NO.

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THIS IS UNEVALUATED INFORMATION

1. The Khram-GES Hydroelectric Power Station was located about 60 km. southwest of Tbilisi (N 41-42, E 44-45) in the ravine of Barmaksyk near Molotovka (N 41-33, E 44-06).
2. Construction of the power station, begun before the war, was suspended in 1941 and resumed in 1945. The storage dam, the tunnel, and the surge tank (Wasserschloss) were built simultaneously. In early 1946, work was begun on the site of the power station proper. At the same time, highways were widened and reinforced, since materials could only be shipped on the highway from Tbilisi. A workers' settlement, called Gezdaniya by the P's, was also built. railroad connections did not exist. Construction was completed in early 1949; the third and last turbine was put into action in May 1949.
3. The power station consisted of a storage dam and a reservoir, a tunnel and 50X1-HUM pipe line, a surge tank with three outflow pipes, a turbine house with three turbines, and a station power generator. A high tension line led to Tbilisi.
4. [redacted] 50X1-HUM an electrician, each of the three turbines had a capacity of 45,000 kw; [redacted] estimated them at 40,000 kw each, [redacted] they were 40,000 or 47,000 kw. At peak production, two of the three turbines were continuously in operation. [redacted] the third turbine was for emergencies only, since there was 50X1-HUM not enough water supply for the operation of all three. [redacted] it would be necessary to build a second reservoir to insure the continuous operation of all three turbines. All power generated was supplied to Tbilisi. [redacted] the power was sent to the Semo-Avchali GES, 12 50X1-HUM miles north of Tbilisi on the Kura river. The Khram-GES station was also expected to supply the industries of Austavi (N 42-17, E 43-51), which was 50X1-HUM insufficiently supplied by the Semo-Avchali GES. 50X1-HUM

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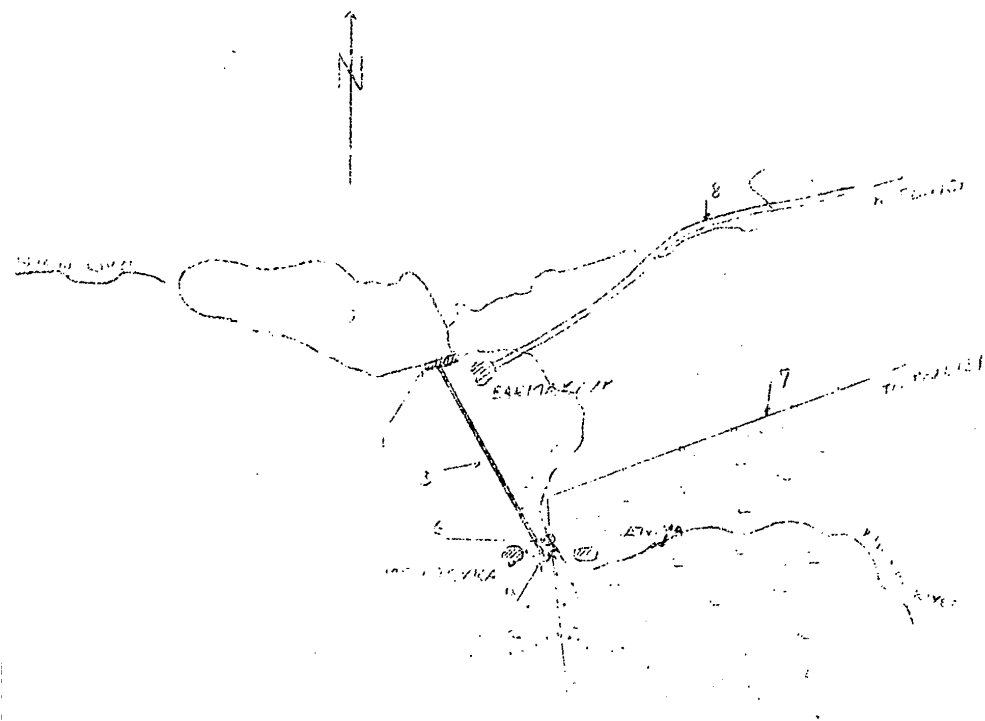
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Location Sketch of the Khran - GKS

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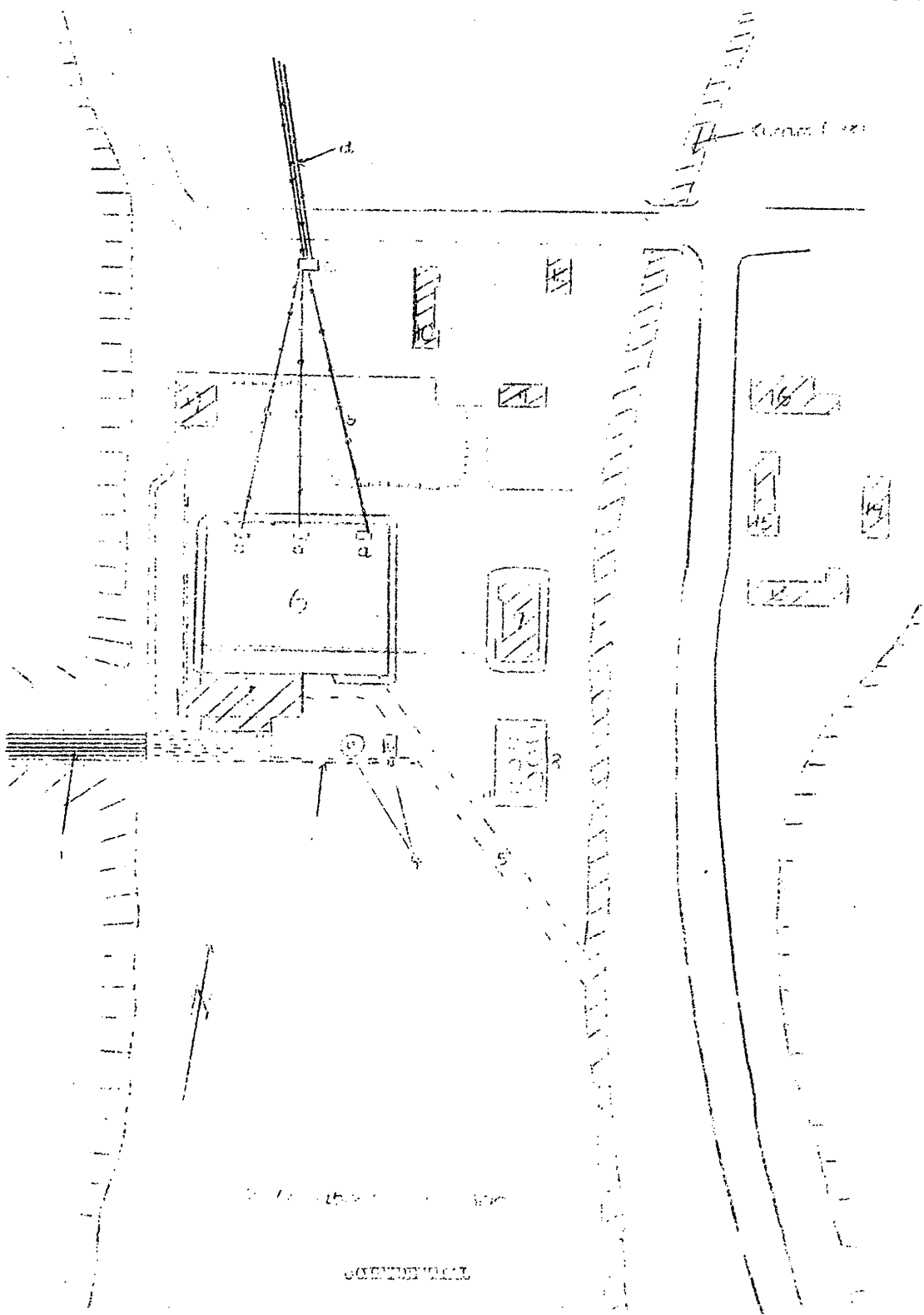
Legend.

1. Dam, 150 meters long, 30 meters high, base width 45 meters, width at top 20 meters. A spillway leading to the old river bed, with a controlling device, was at the northeastern end of the dam (not entered in the sketch).
2. Reservoir. The water surface ranged from 25 to 30 square meters. The lake had a volumetric capacity of about 300,000,000 cubic meters. The inflow point of the water supply line to the power station had an altitude of 1,516 meters above sea level.
3. Tunnel line and pipe line from the reservoir to the surge tank, about 8 km long. The central part of the supply line was an above-ground pipe line, otherwise the water flowed through a tunnel. The pipe line consisted of light steel pipes, about 3 meters in diameter, in a reinforced concrete jacket.
4. Surge tank, and underground basin-like installation where the water tunnel ended. Three outflow pipes led from this place to the turbine house. The basin was about 30 x 13 meters large and 20 meters deep. The surge tank was used for control of the water supply and water pressure. Each outflow pipe could be supplied individually contingent on the operation of all or single turbines. The fall of the pipe line from the inflow water at the reservoir to the surge tank was 51 meters; altitude difference between the surge tank and the turbine house was 372.50 meters; the total fall from the dam to the turbine house was therefore 423.50 meters.
5. Three outflow tubes.
6. Turbine house. The inflow opening of the turbine house was 1,092.50 meters above sea level. 50X1-HUM
7. High tension transmission line, [redacted]. The line was a 100,000 w line leading to Tbilisi. The cables were supported by steel towers which had been dismantled in Germany. Thus far, three phases and one neutral wire had been fitted. 50X1-HUM [redacted] the line was set up for 6 phases, although only three had been installed.
8. Highway road to Tbilisi. 50X1-HUM

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Legend: See next page



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Legend:

1. Three outflow pipes made of light steel, encased in a reinforced concrete jacket, about 2 meters in diameter.
2. Underground spillway.
3. Turbine house, about 65 x 23 x 36 meters.
4. Water rheostat for braking the turbines.
 - a. Water tank, 9 meters in diameter and 6 meters high.
 - b. Water tank, 12 x 6 x 2.5 meters.
5. Two underground drain canals ending in the Khran River. Each canal had a diameter of 2.5 meters.
6. Open-air transformer station equipped to transform the current into high voltage. At the northern edge of the transformer station were three towers (a) receiving all lines coming from the station. From the towers, there were cables (b) leading to a tower, 36 meters high (c), which was the first tower of the high tension line (d) to Tbilisi.
7. Oil station for the supply of transformer oil. 50X1-HUM
8. Oil depot consisting of 6 tanks, 3 of which were movable.
 the tanks contained two different kinds of transformer oil. 50X1-HUM
9. Workshop equipped with lathes, joiners benches, and milling machines for the repair of plant installations.
10. Administration building.
11. Guard station.
12. Fire station.
13. Messhall.
14. Bakery.
15. Bath.
16. Boiler house for the heating and supplying of hot water to all buildings of the settlement and power station.

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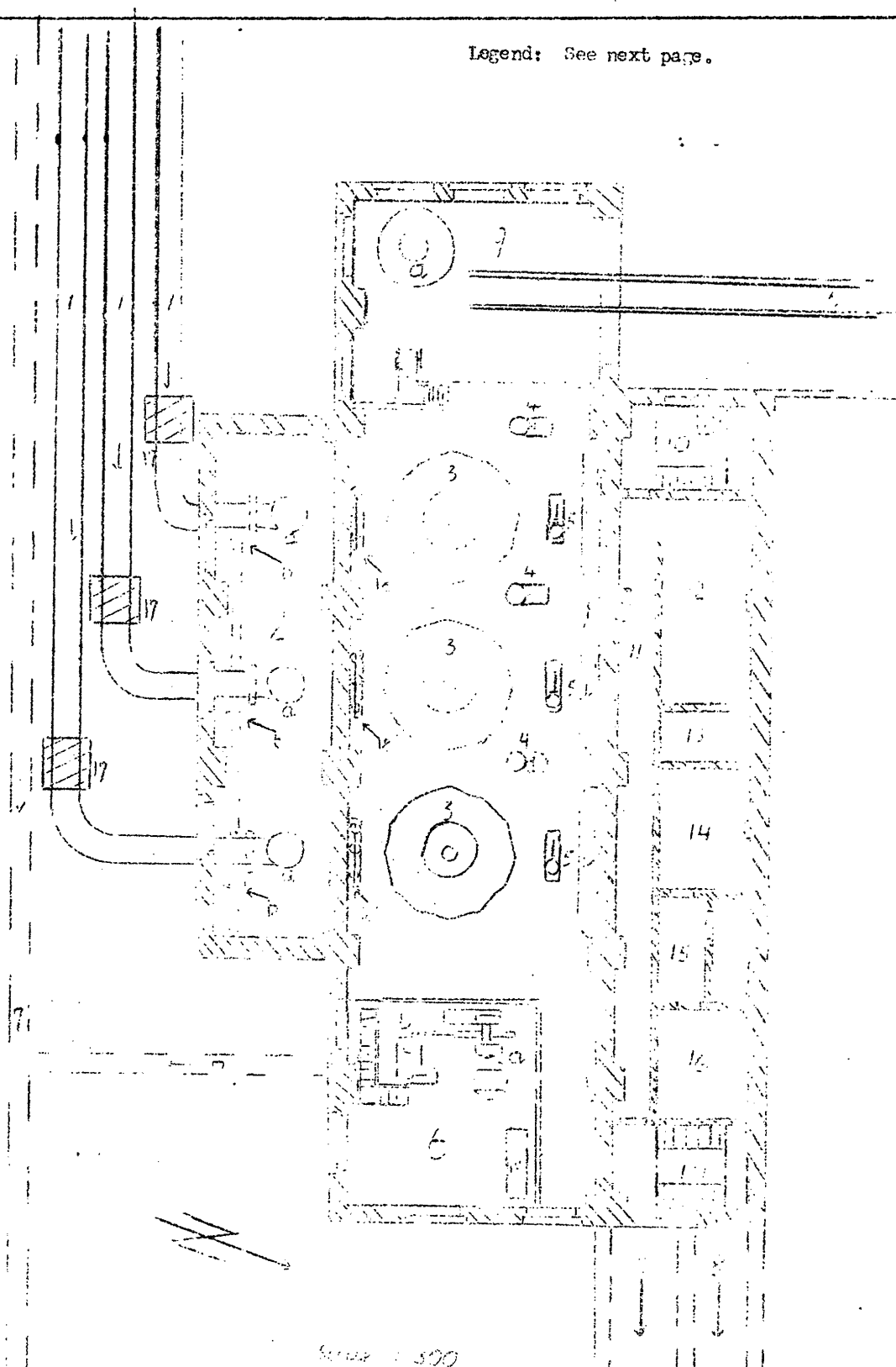
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Layout sketch of the turbine house of the Khran-GFS

(Layout sketch of the second floor of the turbine house)

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Legend:

1. Three outflow pipes coming from the surge tank.
2. Slide valve control station.
 - a. Three main slide valves for closing and opening the three outflow pipes installed in the basement (Unterkellerung) of the slide control station.
 - b. Three secondary slide valves for opening and closing the pipe line (c) leading to the generator for the power supply of the power station.
3. Three Pelton turbines, supplied by a Swedish Plant in Karlstad and installed by two Swedish mechanical engineers. The turbines were connected by a joint shaft with the respective generators. They had a diameter of 9 meters and, with the generators, were 15 meters high. On each generator was an exciter, which was 6 meters high and 3 meters in diameter. The exciter was fitted as pole with its magnetic field on the cover plate of the generator. The cover plate had a diameter of 7.5 meters. The easternmost turbine was put into operation on 31 December 1947, the middle turbine on 31 December 1948, and the third on 1 May 1949.
4. Three control stands (Steuerungsplaetze).
5. Three control boards (Kormandotische) equipped with measuring and telephone sets. The control stands and control boards were supervised by the engineer on duty.
6. Power generator for the supply of the power station installed in a room which was separated from the turbine hall. The capacity of the power unit was 300 kw. It supplied the hydro-electric power station and the Lezdanja settlement. The outflow water was conducted into a spillway.
 - a. Power generator.
 - b. Controlling and governing instruments.
7. Spillway canal.
8. Two discharge canals receiving the outflow water of the three main turbines.
9. Assembly shop with assembly platform (a). The preliminary assembly of the turbines and generators was done in this shop during the time of construction. A track (b) connected the assembly shop with the workshop.
10. Staircase.
11. Cable corridor.
12. Six kv test station. The incoming current to be transformed was tested in this station on insulators. The cable led from this station through openings in the outer wall to the transformer station.
13. Cable shaft.
14. Storage battery station I.
15. Ventilation.

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Legend cont'd from page 2:

- 16. Storage battery station II.
- 17. Concrete anchorage for the outflow pipe lines.
- 18. Unidentified installations.

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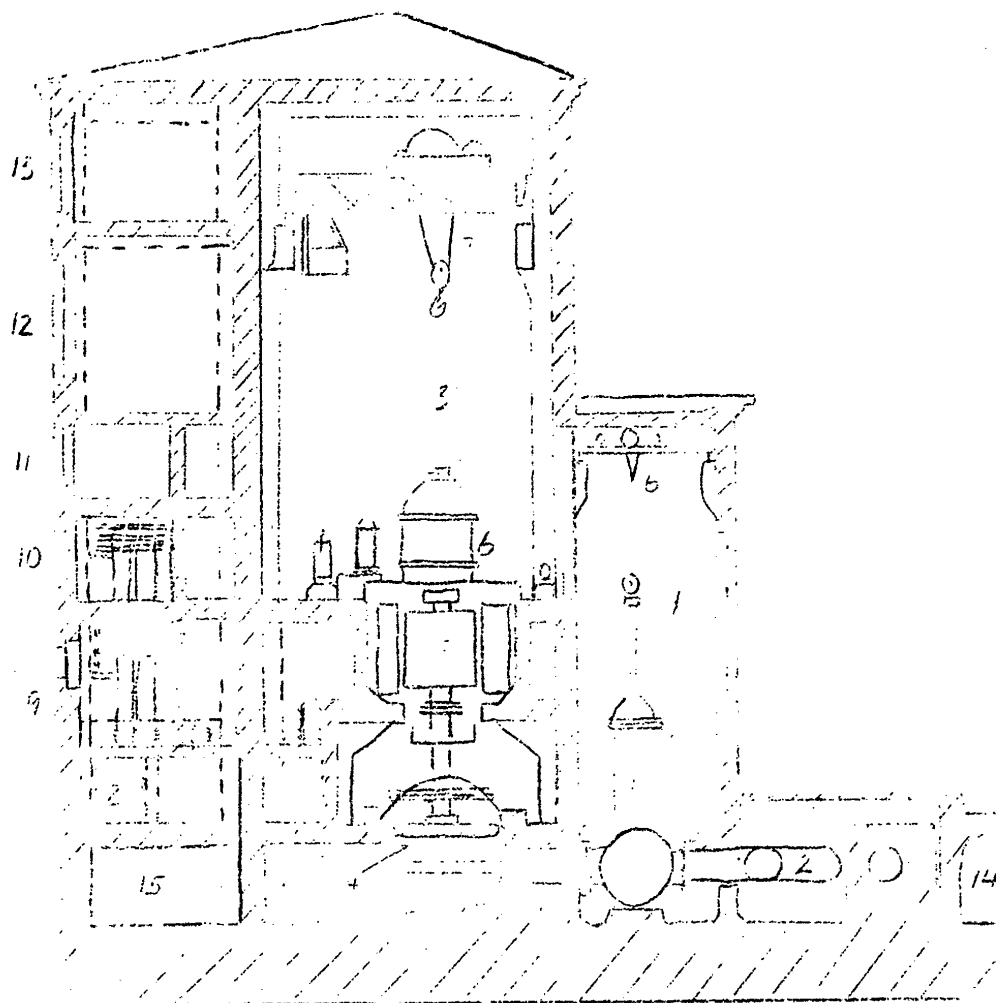
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Cross Section of the turbine House of the Khran-3FS

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Legend:

1. Slide valve house.
 - a. Slide valve.
 - b. Crane with travelling crab.
2. Outflow pipe line.
3. Turbine shop. Part of the shop (to the left in the sketch) was a four-story structure; the remaining part extended upward to the full height of the building.
4. Turbine.
5. Generator.
6. Exciter, next to it were the governing and controlling installations.
7. Rail crane with travelling crab running through the entire length of the shop. Carrying capacity: 160 tons.
8. Cable conduits.
9. Twenty-five kv test station. The current to be transformed was tested on insulators. The power cables from this station to the transformer station went through openings in the outer wall.
10. Six kv station.
11. Office rooms.
12. Cable distribution rooms. No details are available.
13. Switchboard room, equipped with oil switches.
14. Spillway canal.
15. Discharge canals.

Unnumbered installations are not identified.

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